

What Is Claimed Is:

1. A thermal head comprising:
a thermal insulation layer on a radiative substrate;
a plurality of heating resistor elements on a top
face of the thermal insulation layer;

a power supplier that includes an individual
electrode and a common electrode connected to the heating
resistor elements to supply power to a heating resistor;
and

a protection layer that covers surfaces of at least
the heating resistor elements and the power supplier,

wherein the thermal insulation layer includes a
lamination of an inorganic thermal insulation layer having
a ceramic containing Si, transition metal, and one of
oxygen and nitrogen on an organic thermal insulation layer
having polyimide resin.

2. The thermal head according to claim 1, wherein
a film thickness of the organic thermal insulation layer
is in a range from 10 to 30 μm .

3. The thermal head according to claim 1, wherein
a film thickness of the inorganic thermal insulation layer
is in a range from 5 to 20 μm .

4. A thermal head comprising:

a thermal insulation layer on a radiative substrate;
a plurality of heating resistor elements on a top face of the thermal insulation layer;

a power supplier that includes an individual electrode and a common electrode connected to the heating resistor elements to supply power to a heating resistor; and

a protection layer that covers surfaces of at least the heating resistor elements and the power supplier,

wherein the thermal insulation layer includes a lamination of an inorganic thermal insulation layer having a ceramic containing Si, transition metal, and one of oxygen and nitrogen on an organic thermal insulation layer having polyimide,

wherein an inorganic protection layer that includes an oxide of one of: one of Si and Al, nitride, and carbide is additionally formed on a top face of the inorganic thermal insulation layer, and

wherein the heating elements are formed on a top face of the inorganic protection layer.

5. The thermal head according to claim 4, wherein an organic thermal insulation layer comprising a glaze is additionally formed on a bottom face of the organic thermal insulation layer.

6. The thermal head according to claim 4, wherein

a film thickness of the organic thermal insulation layer is in a range from 10 to 30 μm .

7. The thermal head according to claim 4, wherein a film thickness of the inorganic high insulation thermal protection layer is in a range from 5 to 20 μm .

8. A thermal head comprising:

a thermal insulation layer on a radiative substrate;

a plurality of heating resistor elements formed on a top face of the thermal insulation layer;

a power supplier including an individual electrode and a common electrode connected to the heating resistor elements to supply power to a heating resistor; and

a protection layer that covers surfaces of at least the heating resistor elements and the power supplier,

wherein the thermal insulation layer includes a lamination of an inorganic thermal insulation layer having a ceramic containing Si, transition metal, and one of oxygen and nitrogen on an organic thermal insulation layer that includes polyimide resin, and

wherein the protection layer is formed with a ceramic film containing the same material as that of the inorganic thermal insulation layer.

9. The thermal head according to claim 8, wherein a film thickness of the inorganic thermal insulation layer

is in a range from 5 to 20 μm , and a film thickness of the protection layer is in a range from 1 to 3 μm .

10. A thermal head comprising:

a thermal insulation layer on a radiative substrate;

a plurality of heating resistor elements on a top face of the thermal insulation layer;

a power supplier having an individual electrode and a common electrode connected to the heating resistor elements to supply power to a heating resistor; and

a protection layer that covers surfaces of at least the heating resistor elements and the power supplier,

wherein the thermal insulation layer includes an organic thermal insulation layer containing polyimide resin, and

wherein a thermal diffusion layer is formed on a top face of the heating resistor elements with interposition of an electric insulation film.

11. The thermal head according to claim 10, wherein the thermal diffusion layer comprises high melting point metal.

12. A thermal head comprising:

a thermal insulation layer on a radiative substrate;

a plurality of heating resistor elements on a top face of the thermal insulation layer;

a power supplier including an individual electrode and a common electrode connected to the heating resistor elements to supply power to a heating resistor; and

a protection layer that covers surfaces of at least the heating resistor elements and the power supplier,

wherein the thermal insulation layer includes an organic thermal insulation layer having a polyimide resin, and

wherein a thermal diffusion layer is formed on bottom faces of the heating resistor elements with interposition of an electric insulation film.

13. The thermal head according to claim 12, wherein the thermal diffusion layer comprises a high melting point metal.